THE DELAWARE AND HUDSON RAILROAD BULLETIN

MAY 15, 1930

Memorial Day

A handful of old men walking down the village street
In worn, brushed uniforms, their gray heads high;
A faded flag above them, one drum to lift their feet—
Look again, O heart of mine, and see what passes by!

There's a vast crowd swaying, there's a wild band playing,
The streets are full of marching men, of tramping cavalry;
Alive and young and straight again, they ride to greet a mate again—
The gallant souls, the great souls that live eternally.

A handful of old men walking down the highways?
Nay, we look at heroes that march among their peers,
The great glad companies have swung from heaven's byways
And come to join their own again across the dusty years.

There are strong hands meeting, there are staunch hearts greeting—
A crying of remembered names, of deeds that shall not die.
A handful of old men?—Nay, my heart, look well again,
The spirit of America today is marching by.

—THEODORE GARRISON.

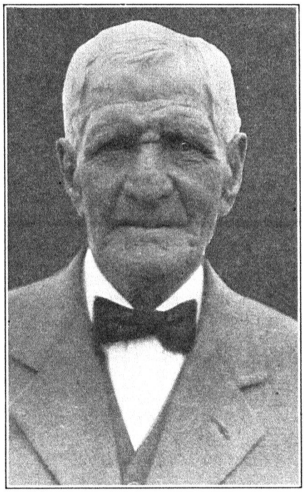
The DELAWARE AND HUDSON RAILROAD CORPORATION
BULLETIN

Vol. 10 | Albany, N. Y., May 15, 1930 | No. 10

Eighty-Four Years Young!

In Perfect Health, Veteran Conductor Expects to Reach Century Mark

IF there is any logic whatever in the old maxim that a man is only as old as he feels, CHARLES A. GRENAWALT, retired Pennsylvania Division Conductor, is not a day over 60. Although he will actually be 84 on his next birthday, he moves about with energy which would do credit to a man many years his junior. Furthermore, he is confident that he will live to be at least 100. The remarkably good health of this old veteran is probably due to the active life he led since childhood, and his program of daily exercise at the present time. From early morning until night he spends many hours walking through the streets of Wilkes-Barre, or along the banks of the Susquehanna River.



CHARLES A. GRENAWALT

When the Civil War broke out, CHARLES, then fourteen years of age, attempted to enlist in the Union Army along with his two older brothers. The mother having died when he was a child, the entire Grenawalt family went to Scranton to enlist. The elder Grenawalt, who was just over 45, was exempted. CHARLES' two brothers were accepted and he, too, said that he wanted to join the army. The enlisting officers turned him down, however, remarking that two of one family was enough; he had better go home and look after his father, while his older brothers were at the front.

One brother returned home at the close of the war; the other experienced a series of adventures which took him around the world. The latter, while wounded in battle, was captured by the Confederates, and taken to Libby Prison in Richmond, Va. Later he escaped and returned home on a furlough. This was the last time he ever visited his family for at the close of the war he enlisted in the navy, sailing at once for a five year period with the Asiatic fleet at Hong Kong, China. On the return trip, after his enlistment expired, he stopped off at Queens Docks, England, where he married an English girl, and lived for the balance of his life. The other brother, upon returning home, entered the service of the Lehigh Valley, working for them for a number of years.

CHARLES' first employment was as a breaker boy picking slate at the rate of twelve cents for a twelve hour day. At that time the breaker only worked in the summer time, closing when the navigation season on the Lehigh River and the canals ceased in the winter. In later years this practice was discontinued in favor of stocking the coal in the winter for shipment the following

spring, thus furnishing continuous employment throughout the year for the miners. While the Civil War was in progress CHARLES lived with his father in the valley of the Lehigh River, near Mauch Chunk, working wherever an opportunity afforded.

Late in 1866 he and a cousin, who is still living at the age of 86, decided to go west. They started out for Orpheesville, on Rock River, in Wisconsin, where they knew a number of people who had migrated from their home town. Arriving in Chicago in the midst of a terrible blizzard, they could not decide what was best to do. After three days of suffering in the cold, CHARLES decided that he had rather go south than push any further westward.

The two parted, therefore, CHARLES taking the Illinois Central toward New Orleans. After a time he abandoned the train in favor of the famous Mississippi River steamer *Robert E. Lee.* For nearly six years thereafter he wandered up one river and down another through the southern states. He paid his passage by tending bar on the steamers, and working at other odd jobs along the way. For a time he was employed in a lumber camp loading what were known as "French butts" or staves which were used in the manufacture of wine casks in France. Arriving home after an absence of several years, he intended to return south two weeks later. Instead, he was married, settling in Wilkes-Barre permanently.

MR. GRENAWALT belonged to the old school of railroad men, the "boomers," who worked on one road for a time, changing to another when a better opportunity offered. His first railroad experience was gained on the Lehigh Valley in 1862 when the tracks between White Haven and Mauch Chunk were washed out by a flood. His services with the Lehigh Valley came to an end when that company issued an order that all conductors should fire locomotives for a period of time so that they would learn more about the handling of a train than they could in the caboose. Inasmuch as he was too light to stand the rugged work of firing he went to work with the Central Railroad of New Jersey at Fairview, Pa., located at the summit of the grade south of Wilkes-Barre.

CHARLES had not been with the Jersey Central long when his father sent him to Mahanoy Valley, to attend a school taught by his uncle. Most of the pupils in the school were "Pennsylvania Dutch" and could not speak English. He therefore entered into an agreement with several of them that he would teach them to speak English if they, in their turn, would teach him "Pennsylvania Dutch." In this way he was able to get along in the school very rapidly.

After he had finished his schooling, CHARLES again entered the employ of the Lehigh Valley as a brakeman. Four months later he was made a conductor on the mine runs between Wilkes-Barre and Waverly. Most of the Lehigh Valley's coal was then transported to Buffalo over the Erie Railroad's tracks. At that time twelve hours constituted one day's work; ten hours overtime drew another day's pay. At one time when business was particularly good he worked a total of 47 days in one month.

MR. GRENAWALT entered Delaware and Hudson employ in an unusual manner. Yardmaster Haycock at Plymouth, who was planning to go west, intended that his yard conductor should act as yardmaster during his absence. The conductor, who was a friend of MR. GRENAWALT'S, suggested that he be hired as yard conductor. The securing of this temporary position resulted in his completing 31 years with our company as a conductor in the Plymouth yards.

Since his retirement MR. GRENAWALT has spent a large part of his time traveling to all parts of this country and Canada. In all, he has covered over 8,000 miles in Canada and the western states, and 4,000 miles through the south. While in Montreal some years ago he made the acquaintance of President E. W. Beatty of the Canadian

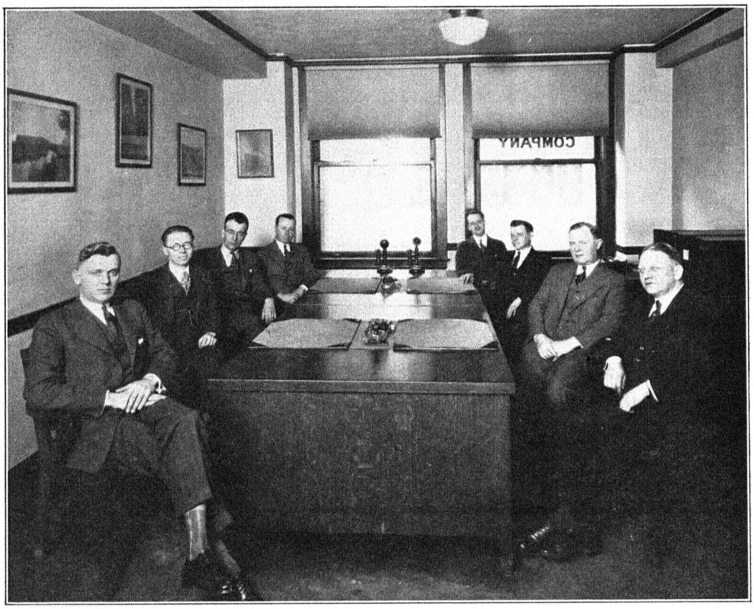
(Continued on page 156)

He's More Than That?

HE who plays fair in the strenuous game of life; who is clean of body, mind, and soul; who associates with honest men; who is courteous to friend and foe; who is too chivalrous to wound the feelings of others; and too sensible to lower his respect for himself; whose hopes and dreams are founded on the rock of determination; who looks you straight in the eye; who meets victory without boasting, defeat without bitterness, and all life with a smile; who loves his friends, his country and his God—is a gentleman.—Ke-Nash-A Club News.

Glimpses of Our Off-Line Offices

IV.—Boston



BECAUSE of its important strategic position as a "bridge" line the Delaware and Hudson Railroad forms one of the principal connections between the several industrial and commercial nerve centers of New England and the rest of the United States. New England has long been famous as a manufacturing region, of which Boston, sometimes referred to as "The Hub of the Universe", is the logical center. From "The Hub" radiate the several railway lines which serve to transport the products of the district to their various destinations.

The importance of the Delaware and Hudson Traffic office, 429-430 Chamber of Commerce Building, Federal Street, is probably evident to our readers. From this location New England Freight Agent A. W. ACKLEY and his staff proceed with the business of "selling" the service which the Delaware and Hudson offers to shippers in this territory.

Due to the physical lay-out of the office it is impossible to do it justice in the photograph which appears above, the agency being quite commodious, well furnished, and modern in every respect.

The staff, from left to right, comprises MR. ACKLEY, Traveling Freight Agents W. J. MUNRO, W. D. OWENS, and W. B. NELSON, A. C. ROGERS, Stenographer, H. I. FLEMING, Chief Clerk and Soliciting Agent, and Commercial Agents D. F. REGAN and E. T. CATE.

When Finders Are Keepers

Articles Left on Delaware and Hudson Property Revert to Finder After 90 Days, Unless Previously Claimed by Original Owner

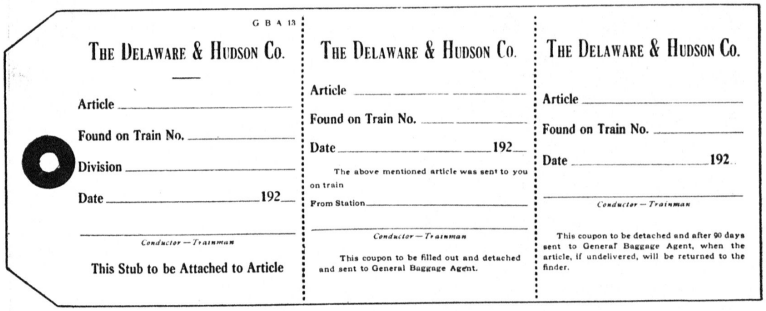
NOT long ago the writer alighted from the Lake George Branch train at Fort Edward. There were a number of passengers waiting on the platform to board the train for Albany when a red silk parasol was handed to the Conductor by the Trainman who had found it on the Branch train. Although he immediately began to interview all the ladies who had ridden on his train, he was unable to establish its ownership.

Being unable to return the parasol to its owner, the Conductor turned it in to the Agent at Fort Edward, who forwarded a report of the finding, together with a description of the article, to the General Baggage Agent in Albany, who is in charge of the "Lost and Found" Department. This is the proper procedure to follow when anything is found on Delaware and Hudson trains or railroad property.

It is surprising to know how many of the millions of travelers who patronize the railroads annually leave belongings on the trains and in stations. Many lost articles are of slight value; others are often worth a great deal.

A list of articles found by railroad employes includes umbrellas, handkerchiefs, gloves, and purses, in addition to sweaters, cameras, dental-plates, bathing suits, night-shirts, cut-flowers, eye-glasses and many other things. In all cases there would probably be little or no trouble experienced in returning these articles to their respective owners; however, travelers frequently fail to claim lost belongings, either thinking them of insufficient value or having no idea of where they were lost.

Strange as it may seem, it is an undeniable fact that men are the champion losers. This is, no doubt, due to the fact that they are burdened with weighty affairs and more or less hard-pressed for time in business matters.



The Whole Story in a "Nut Shell"

Sometimes employes who find certain things of considerable value, such as large sums of money or pieces of jewelry, receive valuable rewards; at other times they are awarded only with verbal thanks. It is understood that a large sum of cash, approximately $62,000, was once found by an employe of a railroad, who turned it in as any honest person would have done. As a result the money was finally returned to the proper owner. The loser, after making inquiries as to the name and address of the finder, called upon him. After a number of flowery remarks, complimenting him on his honesty, he offered the finder a cigar. Even though an inveterate smoker, the considerate fellow who had found and returned the $62,000, did not feel that he should impose upon the gentleman's generosity, and the perfecto was therefore declined with thanks!

(Continued on page 156)

Efficiency On Wheels

Locomotive 1402, With 500 Pounds Steam Pressure and Special Alloy Steel Parts Reducing Weight, Develops Tremendous Power With Low Fuel Consumption

IN introducing Delaware and Hudson Locomotive No. 1402, named *James Archbald*, to our readers it may be of interest to summarize rapidly the development of this class of power and the underlying motive therefor.

A little more than five years have slipped by since the *Horatio Allen*, otherwise known as Delaware and Hudson Locomotive No. 1400, carrying a boiler pressure of 350 pounds per square inch, became the outstanding pioneer example of the steam locomotive designer's skill of that time. *The Bulletin* of January 1st, 1925, describes in detail the ceremony attendant upon the christening of the new locomotive.

During the score of years immediately preceding this event changes had been taking place in the design of so-called "conventional" types of locomotives in an heroic effort by the designers and builders to stem the rising tide in favor of electrification of main-line tracks. Proponents of the newer method of propulsion were stressing the 7 per cent maximum over-all efficiency with which the locomotive engine transformed the available energy in a lump of coal into useful work at the rear drawbar of the tender; meanwhile emphasizing the 80 to 90 per cent efficiency of the electric locomotive. Without going into a lengthy discussion of cost of power house equipment, transmission losses and interdependence of operation in emergencies, suffice it to say that the Delaware and Hudson management has always felt that, as PRESIDENT LOREE said at the Agents' Meeting last fall, "—the whole future, from our point of view, is with the steam railroad."

Let us return for a moment to the 7 per cent efficiency of the locomotive. When it is considered that a maximum *theoretical* efficiency of about 15 per cent is all that is possible, it will readily be seen that, if we increase the *actual* efficiency but 1 per cent that will represent an improvement of one-eighth of what is *theoretically* attainable but which is never reached in actual operation.

Right Side, Showing High Pressure Cylinder

By resorting to the use of superheaters, feedwater heaters, power-driven stokers and other devices it has been possible to build locomotives of enormous size, the overall efficiency of which has been reported to be as high as 8 per cent.

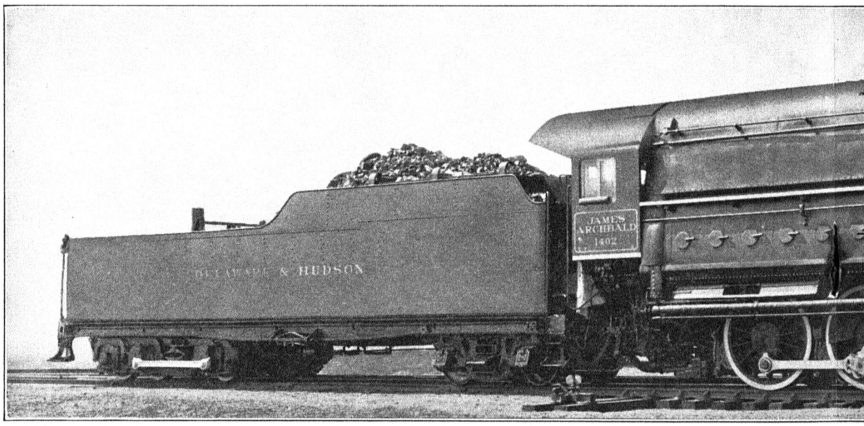
An easier way of achieving the same result is to increase the steam pressure and take advantage of the possibilities of using the same steam expansively in more than one stage or cylinder. In Europe compounding has been practiced for many years. The multiple expansion of the steam from a small cylinder to a larger one, through an intermediate receiving chamber is much more efficient than exhausting directly out of the smokestack after the initial expansion.

With the general adoption of the superheater about twenty-five years ago American railroads generally discarded the compound principle in order to rid themselves of the then excessive cost of maintaining locomotives of this type. Today, after over a score of years of development, designers and builders agree that the compound type with a higher pressure boiler offers the surest solution of the problem of producing greater efficiency of operation.

Since boiler pressures in excess of 250 pounds per square inch are rare in America, the three Delaware and Hudson locomotives 1400, 1401, and 1402, named in order *Horatio Allen*, *John B. Jervis*, and *James Archbald*, are noteworthy because of their pressures of 350, 400, and 500 pounds. That the first two have been in successful operation for five and three years, respectively, should remove them from the experimental class. They are accomplishments.

The *James Archbald* is very appropriately named after the man to whom was entrusted the task of first improving the Delaware and Hudson Canal and the Gravity Railroad so as to increase its capacity. Starting as a contractor in the construction of the Erie Canal, Mr. Archbald later rose to the presidency of a western railroad.

In appearance "the 1402" is an improvement over her predecessors, the jacket extending from the cab to the front of the smokebox in an unbroken line. The smokestack and bell are thus completely hidden from view from the sides and rear. Following the precedent established on locomotives 651 and 652, the headlight is placed in a recess in the smokebox front. Sixty-three inch driving wheels of high tensile steel should permit faster operation than is permissable with the earlier engines of this class equipped with fifty-seven inch drivers, and still allow the piston speed to be held down to a desired maximum. Although the engine is of the Consolidation type (2-8-0) and not intended for high speeds, the counter-balancing of the driving wheels is calculated for 75 miles per hour.



Although its Tractive Effort (with Booster) is 102,300 lbs. the Locomoti

The ruggedness of the machine is strikingly apparent upon an inspection of the cast nickel steel guides and the crossheads which carry Becker wrist pins. Outside bearings are used on the engine truck. All driving axles and crank pins are of nickel steel, while the piston heads and solid piston rods are of high tensile steel. Weight limitations, which prevent increasing bearing sizes, necessitate the use of a higher grade of material than is generally used in locomotive construction.

Illuminated number plates are mounted below the running boards above the cylinders. The pneumatic quick-acting bell-ringer actuates the clapper only, the bell remaining stationary except in emergencies when hand operation takes place in the usual manner. Air operation also controls the steam whistle, although it may be manually operated if desired.

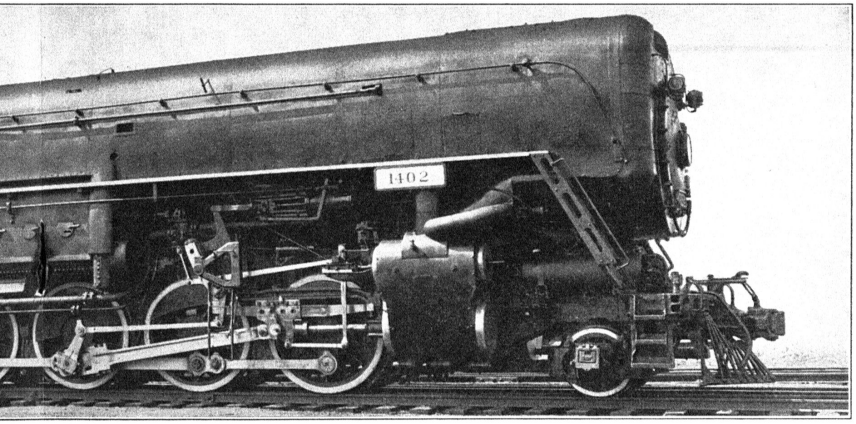
Because of the pressure of 500 pounds per square inch against which it is necessary to force water into the boiler, and because of the high temperature of the steam used for its operation, the first Monel metal inspirator cast in this country is used on the new locomotive. This inspirator, of 4,500 gallons per hour capacity, acts as an auxiliary to the Dabeg mechanically driven feed-water pump, which is directly connected to the left crosshead.

A new design of Westinghouse cross-compound air compressor is used. This has a high pressure steam cylinder of only seven and one-half inches diameter as compared with eight and one-half inches in the regular design of 150 cubic feet per minute capacity. The decrease is possible because of the high pressure of the steam even after passing through a five-sixteenth inch choke between the governor and the pump. Exhaust steam from the compressor is carried to the condensing reservoir of the feed-water pump instead of exhausting it up the stack as is usually done.

A 6-feed force-feed lubricator delivers oil into both the top and bottom of the cylinders as well as in the valve chambers. It also feeds oil to the main driving boxes. The remainder of the driving boxes are grease lubricated. The guide oil "cups" are in reality reservoirs cast into the guide bars. A hydrostatic lubricator in the cab supplies lubrication to the intercepting valve, steam end of air pump, booster and drifting valve. There is also a flange-oiler of the pendulum type for lubricating the flanges of the driving tires to prevent wear on curves.

The most vitally important part of the locomotive is the boiler which must safely hold steam under a pressure of 500 pounds per square inch. It is built almost entirely of nickel steel and has a water-tube fire-box similar to the 1400 and 1401.

(Continued on page 157)



he Locomotive Weighs but 356,000 lbs., 300,000 Being on the Drivers

The
Delaware and Hudson Railroad
CORPORATION
BULLETIN

Office of Publication:
DELAWARE AND HUDSON BUILDING,
ALBANY, N. Y.

PUBLISHED semi-monthly by The Delaware and Hudson Railroad Corporation, for the information of the men who operate the railroad, in the belief that mutual understanding of the problems we all have to meet will help us to solve them for our mutual welfare.

Vol. 10 May 15, 1930 No. 10

Pioneers of 1930

TWO locomotives, both of which may revolutionize present practices in motive power design, recently stood side by side in the shops of the American Locomotive Company. Each, like the many students who are about to graduate from institutions of learning throughout the land, represented the culmination of years of study and development. Yet they, too, stand only at the "Commencement" of their usefulness to the world.

Typifying the greyhound with its long graceful lines, was the Timken Roller Bearing Company's new No. 1111, designed throughout to eliminate friction and thus increase its operating efficiency. Years of experimentation and development have seen the progress of bearings through the various stages of ball- and roller-types, and their use in bicycles, automobiles and, after a lapse of several years, railway coaches. The idea of equipping a locomotive with roller-bearings throughout was so radical that no individual railroad wished to assume the expense of its construction. Only actual service tests and maintenance costs will prove the value of the use of anti-friction bearings for such applications.

Bulldog-like in its chunky might, the *James Archbald* or D. & H. No. 1402, described elsewhere in this issue, stood alongside. Designed to be the most efficiently operating steam locomotive on the American continent, thermally, it should also show an overall efficiency greater than any yet attained by this type of power. Although preceded by two other locomotives of somewhat similar design the *James Archbald* with 100 pounds greater boiler pressure is a tremendous step ahead of its predecessors.

Who knows but what a happy combination of the best proven features of each of these pioneers will result in a new standard for the so-called "conventional" type of American locomotive, which, both in appearance and performance, will make the motive power of the first quarter of the Twentieth Century seem as crude in comparison to it as the *Stourbridge Lion* now appears.

Grade Crossings

COMPLETE reports for the year just filed by the railroads with the Interstate Commerce Commission and made public recently, show that there was a reduction, compared with the preceding year, of 83 or 3.2 per cent in the number of persons who lost their lives in 1929 as a result of accidents at highway grade crossings.

This reduction took place in the face of an increase of thirteen per cent in the number of fatalities on highways due to motor car operation during 1929 compared with 1928.

Fatalities resulting from highway grade crossing accidents totaled 2,485 in 1929 compared with 2,568 in 1928.

Persons injured in such accidents in 1929 totaled 6,804 compared with 6,666 in the preceding year, or an increase of 138.

A total of 5,975 accidents took place at highway grade crossings during the past year compared with 5,800 the preceding year, or an increase of 175.

The railroads, in co-operation with state and local authorities, are eliminating as rapidly as possible the most hazardous crossings but despite objections of the rail carriers, many new crossings are being installed. For instance, there were in 1928, according to the latest reports available, 270 highway grade crossings eliminated, while at the same time there were 1,697 new crossings created.

Because of physical reasons and prohibitive cost, it is impossible to eliminate all highway grade crossings but millions of dollars are being spent annually by the rail carriers for automatic warning devices, gates, signs and signals, in an effort to safeguard human life to the greatest extent possible at all highway grade crossings which can not otherwise be eliminated.

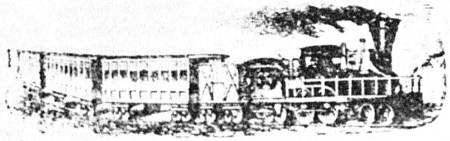
THE SARATOGA LINE.

Delaware & Hudson Canal Co.'s

RAILROAD.

The Only Comfortable Route to the

ADIRONDACKS !



And the Only Line to

Saratoga, Lake George,
Sharon Springs, Howe's Cave,
and Cooperstown.

THE SHORTEST ROUTE TO

Montreal and the Provinces !

TO THE WHITE MOUNTAINS

Via Saratoga, Lake George, Lake Champlain & Burlington.

No other Route can offer as great advantages [illegible] by special arrangement, all rail tickets reading via the DELAWARE & HUDSON CANAL COMPANY'S RAILROADS and [illegible] on the LAKE CHAMPLAIN STEAMERS and vice versa.

SEE THAT YOUR TICKETS READ VIA THIS ROUTE.

Tickets via this line are on sale in Washington, Baltimore, Philadelphia, and in New York at the Principal Ticket Offices and Hotels, at the Grand Central Depot, and at the Company's Office, 429 Broadway, corner Canal St.

C. F. YOUNG, General Manager. HONESDALE PA

D. M. KENDRICK, Gen. Pass. Agent. ALBANY, N. Y.

This advertisement of "The Saratoga Line" appeared in the *Plattsburg Directory* of 1882.

Eighty-Four Years Young!

(Continued from page 148)

Pacific who gave him passes which enabled him to visit the principal cities on that line.

There was an unmistakable twinkle in his eyes when he told how he made himself an unofficial inspector for the general contractor who built the new Market Street Bridge across the Susquehanna River at Wilkes-Barre. Almost every day MR. GRENAWALT was on the scene watching the progress of the workmen, and chatting with them during their lunch hour. When the bridge was completed he sent a bill to the contractor for $.01 for services rendered from August 6, 1926, until September 25, 1929. In reply the contractor mailed him a check for one cent. It hangs in a frame in MR. GRENAWALT'S room, between photographs of the old and new bridges. He was among the guests at the formal dedication exercises at the bridge, and also at the banquet tendered by the contractor in Hotel Sterling that evening.

"You couldn't give me the best car that is made," says MR. GRENAWALT, "for walking has always been my favorite hobby. That is how I spend most of my time. Since I retired I have enjoyed very good health and I am perfectly happy. My thought is that a man who has worked for fifty years or so should have saved up enough money to retire. Then he can enjoy life while the younger fellows carry on from where he left off."

Folks who never do any more than they get paid for, never get paid for any more than they do.—*The Ambassador.*

"Men may come and men may go, but mistakes go on forever."

Such were the thoughts of one of the city librarians yesterday when a timid-looking girl of perhaps nineteen years accosted her, asking if she had a book entitled "Oranges and Peaches."

A most diligent search proved that no such book was in the possession of the library.

"Are you sure that 'Oranges and Peaches' is the title of the book?" asked the librarian.

"Yes, I believe that's what the professor said to get," was the answer.

"Who is the author?"

"Darwin."

Imagine the surprise of the librarian when it "dawned on her" that the book desired was Darwin's "Origin of the Species."—*Santa Fe Magazine.*

Did You Know?

That the Grand Canyon Bridge, under construction near Prescott, Ariz., will be the highest bridge in the world when completed. Its span is 616 feet long. The roadway is 833 feet in length and 845 feet high.

That more railway construction is under way in Manchuria now than in any other part of the world.

One of the fastest known birds is the spinetailed swift, which reaches the speed of 220 miles an hour over the mountains of Asia.

When Finders are Keepers

(Continued from page 150)

Our system of handling articles found on railroad property is simple but satisfactory if the rules are followed by all concerned. Lost articles are tagged with the first coupon of a triplicate form and then either forwarded to the General Baggage Agent or held at the point where turned in, as in the case of the parasol. The second section of the ticket or form attached to the article, and bearing the name of the finder is sent in to the General Baggage Agent, in Albany. The third section of the ticket is given to the finder as a receipt, in order that he may claim his property according to the old rule of "Finding is keeping", if it is not called for in ninety days. If, at the expiration of that time, the article is not claimed, it is returned to the finder. As above stated, it is not necessary that such articles be sent to Albany, though the proper filling out of the tag or "ticket" is very important as there is no other way of identifying property which is turned in untagged. Consequently, it goes into the scrap can at the end of 90 days and the finder is unable to claim it through the fault of no one but himself.

Father, mother and little Tommy were in a street car. Mother and Tommy had secured seats, but poor father had to stand.

Mother—Tommy, doesn't it pain you to see your father reaching for a strap?

Tommy—Only at home, mother.—*Selected.*

Efficiency On Wheels

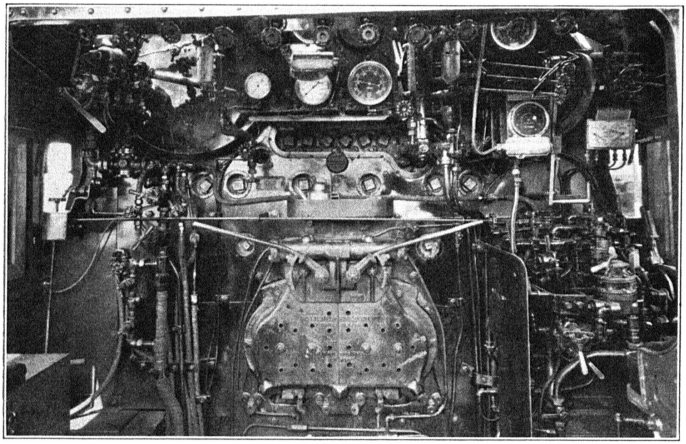
(Continued from page 153)

This consists of a series of longitudinal nickel steel drums at the top and bottom, connected by rows of vertical tubes through which the water circulates at a very rapid rate, being transformed into steam as it reaches the upper row of drums. Additional heating surface is furnished by the flues as in any locomotive.

While a steam pressure of 500 pounds seems high to most railroaders, it should be noted that there are in operation in Europe locomotives carrying 800 to 900 pounds in dual-pressure boilers. There is also now being constructed a locomotive which will carry 3,300 pounds pressure in its boiler.

Among the special provisions made for maintaining the boiler are two blow-off valves which exhaust through mufflers before the steam reaches the atmosphere, thus lessening the noise and disturbance in the roundhouse when it is necessary to "blow down" the steam in connection with inspection or repair work.

In the cab is found a bewildering array of gauges and valve handles. There is an even dozen of gauges, without counting the two water gauges, most of which are located on a central instrument board. The temperature and pressure of the steam at various stages of its passage from the boiler to the stack, the feedwater temperature and pressure, the cut-off and speed-recorder, and the various air pressures are all available from the instruments. The extension handles from the cab-turret valves are brought back to an auxiliary board which is marked to show the purpose of each valve. All steam pipes, which must be extra heavy to withstand the high pressure steam, are heavily lagged to avoid danger of burning the crew. Extension handles on the gauge cocks make them readily accessible. The usual throttle, Alco reverse lever, brake, sander, and miscellaneous valves complete the cab equipment. A "butterfly" type air-operated fire-door is also provided.



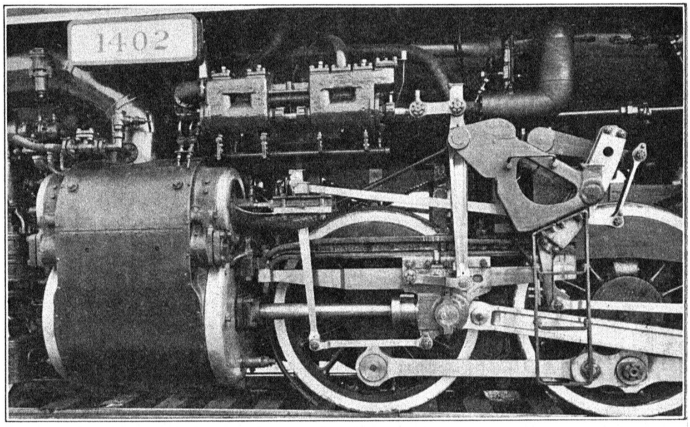
In the Cab—A Bewildering Array of Gauges and Valve Handles

The tractive power of the *James Archbald* will be exactly the same as that of the other two locomotives; 84,300 pounds as a simple engine, that is, using high pressure steam in both cylinders. In starting a train this may be further increased by "cutting in" the auxiliary locomotive, more commonly called the tender booster, which adds 18,000 pounds, thus making a total of 102,300. This tremendous pull is exceeded by few road engines other than some of the giant Mal-

lets. Once the train is under way the booster is shut off and the steam is used expansively first in the small high pressure cylinder (20½x32 inches) and then in the large low pressure side (35½x32 inches). The tractive force then drops to 70,300 pounds or less, depending on what is required to keep the train in motion at the desired speed.

The fire-box which is 152x77⅝ inches contains a grate area of 82 square feet, cast steel grate bars of the pin-hole type being used. The ash pan dampers are arranged to open automatically with the opening of the throttle, closing when steam is not being "worked." A similar arrangement is now in successful operation on locomotive 1114.

Safety of operation and cost of maintenance must always be weighed against capacity and operating expense. Experience with the 1400 and 1401 proves that locomotives of this design are safe and that the cost of maintenance is not out of proportion to their performance on the road. Operating expense of the 1402 should be even lower than for its predecessors if the greater economies of the higher boiler pressure are realized. The earlier engines have demonstrated that they possess ample capacity for doing the work for which they are designed. They have plenty of reserve power, ample starting, accelerating, and hauling capacity. Thus No. 1402 represents the



Mechanical Driven Feed Water Pump and Low Pressure Cylinder

To assist the fireman in his work a steam-driven coal pusher is provided to "shovel ahead" the coal in the tender so that it will always be handy. Only 17½ tons of coal and 14,000 gallons of water are carried, as compared with 20 tons and 16,000 gallons provided for No. 1401. As the two are to be used in the same service and on the same division, between Oneonta and Mechanicville, this decrease gives an idea of the anticipated economy expected from the new locomotive.

Due to this decrease in load the tender is provided with only a four-wheeled Economy truck at the forward end while a six-wheeled "auxiliary locomotive" booster supports the rear end. A cast steel underframe is used on the tender. The total loaded weight of engine and tender is 633,500 pounds of which 300,000 are on the drivers.

next logical step in the development of this type of power. It is an outstanding example of patient application of fundamental engineering principles in the solution of a problem.

"Before you can be forgiven for your sins," said the kindly little priest to the dying man, "you must forgive all your enemies."

"I haven't an enemy in the world," replied the old Spaniard.

"What?" asked the amazed priest, who knew something of the life of the dying man,—"no enemies?"

"Not an enemy in the world," replied the dying man, "I killed the last one day before yesterday."—*Clipped.*

Clicks from the Rails

The Vanishing Caboose

If predictions of Kansas City Southern officials come true, the caboose will be a thing of the past in the near future. They have been conducting experiments for some time with the object in view of finding a more suitable location for the train crew. After placing the caboose in different positions in the train, it was decided that the best place for it was directly behind the engine. A glass enclosed cab large enough for the conductor and head brakeman, was therefore designed and placed on the end of the locomotive tender. From this position, they report, the conductor can more readily communicate with the engineman, at the same time both conductor and trainman have a better view of the train.

"On new locomotives," C. E. Johnson, president of the road said, "the cab will be an elevated cupola at the back end of the tender, with seats facing each other for the conductor and head brakeman." He is also reported to have predicted that the equipment would become standard on all railroads soon.

* * *

A Fast European Train

According to a newspaper report the second fastest train in Europe was put in service in Sweden between Stockholm and Gothenburg this spring by the government-owned railways. It will make an average speed of about fifty miles an hour, covering the 285-mile distance between the two cities in five hours and forty-four minutes. Only one European train is fleeter, the Paris-Bordeaux express. The Swedish train will carry first, second and third class carriages, as well as a diner.

* * *

Dispatcher Also Musician

Train Dispatcher E. C. Kinney of the Pennsylvania, is the head of the Kinney family orchestra, consisting, besides himself, of his wife, two sons and a daughter. He has also been instrumental in introducing musical instruction in the schools of Sunbury, Pa., his home town, and has served as musical instructor for some years, without pay.—*Railway Age.*

Weather Made to Order

For the first time in history a railroad car in regular train service has its weather "made to order." After a week of scientific "refinement" by mechanical and electrical engineers, the air-cooled, air-cleaned colonial dining car *Martha Washington,* became a part of the Baltimore and Ohio Railroad train *Columbian* between Washington and New York, on April 23. The temperature and humidity in the car can be controlled at all seasons of the year, especially in hot weather, and the air can be kept free of soot, smoke and cinders.

* * *

A "Flying Coupling"

Engineman John Weir, of the Erie, raced his locomotive after a runaway caboose containing two men at Spring Valley, N. Y., recently, and with the automatic coupler, caught the flying car. The caboose started down grade on the same track on which Weir's engine was standing. Weir put on all steam, fearing the caboose would crash into a passenger train coming into the station. The coupling effected at high speed, the engineer backed his engine and placed caboose on to a siding in time for the passenger train to pass on schedule.—*Railway Age.*

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Bandits Stop Train

The Orient Express was held up recently by a band of ten Macedonian revolutionaries, Jugoslav authorities say. A band halted the train with a bomb on the tracks and passengers were covered with rifles while sleepers were plundered. The engineer and fireman uncoupled the locomotive and sped to Zaribaord, the next station, for help. Jugoslav gendarmes pursued the bandits to the Bulgarian frontier.—*Railway Age.*

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Cannon Ball Unearthed

The leveling of a hill at Somerville, Mass., for an extension of the Boston & Maine yard facilities brought to light a relic of the Revolutionary War. It is a three-pound cannonball, three inches in diameter, and dating back to the siege of Boston in 1776.

$6,000,000 Terminal

Detroit is to have a new railroad terminal and modern station, at a probable cost of $6,000,000, a prime feature of which will be the discontinuance of the passenger-train ferries across the Detroit river. East- and west-bound passengers will be taken under the river through the new pedestrian and vehicle tunnel now under construction. To some extent the terminal plans may be said to be connected with the proposed developments in Windsor, which is just across the river in Ontario, Canada, according to Sir Henry Thornton. By means of the vehicular tunnel, passenger traffic for Canada originating in Detroit may use the Windsor station. Vehicles provided by the railroads will convey passengers not using taxicabs or their own cars, through the tunnel to the Windsor station from which they may continue their journey by train. On the in-bound trip to Detroit, passengers will also use the tunnel. Windsor is also to have a new station.

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Transferred from Rail to Air

In an effort to learn if it were possible for an Army blimp to pick up mail bags from a speeding train, a test was recently staged on the Pennsylvania Railroad. The blimp, "C-41", hovered over the tracks of the railroad until the train came in sight, when it swooped very low and then a rope was dropped with a grappling hook at the end. Awaiting a favorable chance, the man in charge of the rope swung it in time to hook the bag and then pulled it up to the cabin of the blimp. The train sped on to its destination without stopping.

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Another Side Line

In addition to serving as a yard foreman for the Louisville & Nashville, John T. Garner is secretary of the Alabama Rabbit Breeder s Association, and secretary-treasurer of Garner & Sons Rabbitry. His "Excello," a New Zealand red buck, won first prize at Los Angeles and San Diego in 1928, and at Birmingham in 1929.

Four Things

Four things a man must learn to do
If he would make his record true:
To think without confusion clearly;
To love his fellow men sincerely;
To act from honest motives purely;
To trust in God and Heaven securely.

—HENRY VAN DYKE.